



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2011-1419; Directorate Identifier 2010-NM-281-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede an existing airworthiness directive (AD) that applies to certain The Boeing Company Model 737-300, -400, and -500 series airplanes. The existing AD currently requires repetitive inspections for cracking of the crown area of the fuselage skin, and corrective actions if necessary. Since we issued that AD, we received additional reports of cracking at the horizontal chem-mill steps away from the lap joints over the entire crown area, and vertical chem-mill cracks adjacent to the butt joints. This proposed AD would add repetitive inspections for cracking using different inspection methods and would inspect additional areas, and corrective actions if necessary. This proposed AD would also require additional repairs to previously repaired areas and repetitive inspections for loose fasteners and replacement if necessary in certain previously repaired areas. This proposed AD would also reduce certain compliance times and extend certain other compliance times. We are proposing this AD to detect and correct fatigue cracking of the fuselage skin, which could cause the fuselage skin to fracture and fail, and result in rapid decompression of the airplane.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail [me.boecom@boeing.com](mailto:me.boecom@boeing.com); Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind

Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6447; fax: (425) 917-6590; e-mail: [wayne.lockett@faa.gov](mailto:wayne.lockett@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2011-1419; Directorate Identifier 2010-NM-281-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

### **Discussion**

On June 15, 2005, we issued AD 2005-13-27, amendment 39-14164 (70 FR 36821, June 27, 2005), for certain Boeing Model 737-300, -400, and -500 series airplanes. That AD requires repetitive inspections for cracking of the crown area of the fuselage skin, and corrective actions if necessary. That AD resulted from a Model 737 fuselage structure test and fatigue analysis that indicate fuselage skin cracking could occur between 21,000 and 42,000 total flight cycles. We issued that AD to detect and correct fatigue cracking of the fuselage skin, which could cause the fuselage skin to fracture and fail, and result in rapid decompression of the airplane.

### **Actions Since Existing AD Was Issued**

Since we issued AD 2005-13-27, amendment 39-14164 (70 FR 36821, June 27, 2005), additional reports of cracking at the horizontal chem-mill steps away from the lap joints over the entire crown area, and vertical chem-mill cracks adjacent to the butt joints, have been received. Although there were no changes to the applicability in AD 2005-13-17, we have changed paragraph (c) of the proposed AD to refer to Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010.

### **Relevant Service Information**

We reviewed Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010. Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005, was referred to for accomplishing the actions in AD 2005-13-27, amendment 39-14164 (70 FR 36821, June 27, 2005). Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, describes procedures for repetitive non-destructive inspections (NDI) (medium frequency eddy current, magneto optical imaging, C-scan, or ultrasonic phased array) for cracking of the fuselage skin, and corrective actions if necessary. The NDI inspections for cracking of the skin include:

- Inspecting for horizontal chem-mill cracking above the S-4 and S-10 lap joints
- Inspecting for horizontal chem-mill cracking in the shear wrinkle areas
- Inspecting for vertical chem-mill cracking at specified locations
- Inspecting for horizontal chem-mill cracking in general pocket-to-pocket areas at specified locations.

The corrective actions include installing a permanent repair (including related investigative actions and applicable corrective actions), installing a time-limited repair (including related investigative actions and applicable corrective actions), and contacting Boeing for repair instructions and doing the repair. For the temporary repair, the related investigative actions include a detailed inspection for cracks of the skin and a detailed inspection for corrosion and disbonding of the lap joint; and the corrective action is

contacting Boeing for repair instructions and doing the repair. For the permanent repair, the related investigative actions include an NDI inspection for cracks of the skin and fastener holes and a detailed inspection for corrosion and disbonding of the skin; and the corrective action is contacting Boeing for repair instructions and doing the repair.

Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, also describes procedures, for airplanes on which permanent repairs have already been done, for installing internal tear strap doublers.

Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, also describes procedures, for airplanes on which time-limited repairs have already been installed, for doing repetitive detailed inspections for loose fasteners until the permanent repair is installed; and making the repair permanent (including related investigative actions and applicable corrective actions) by replacing the blind fasteners in the time-limited repair with solid rivets, and installing internal tear strap doublers. The related investigative actions include an NDI for cracks of the fastener holes and skin, a general visual inspection to determine if fasteners are installed common to the chem-milled steps, and a detailed inspection for corrosion and disbonding of the skin; and the corrective action is contacting Boeing for repair instructions and doing the repair.

The repetitive NDI inspection intervals vary depending on the configuration and the inspection option. Option 1 of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, specifies doing one of the following NDI; medium frequency eddy current inspection, magneto optical imaging inspection, or C-scan inspection). Option 2 specifies doing one NDI - an external ultrasonic phased array inspection. The repetitive interval ranges between 500 flight cycles and 2,400 flight cycles. Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, also specifies that if the inspection procedure is switched from Option 2 to Option 1, then the next Option 1 inspection must be done within the Option 2 interval; and that if

the inspection procedure is switched from Option 1 to Option 2, then the next two Option 2 inspections must be done within the Option 1 interval.

The inspection thresholds range from 25,000 total flight cycles to 81,000 total flight cycles, depending on the airplane configuration and inspection location. The grace periods range from 500 to 2,400 flight cycles or 1,800 flight hours, depending on the airplane configuration and inspection location. The repetitive inspection intervals range from 500 to 2,400 flight cycles, or 1,800 to 2,400 flight hours, depending on the inspection type and airplane configuration. For airplanes on which a time-limited repair is done, the compliance time to do the permanent repair is 6,000 flight cycles after doing the time-limited repair.

Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, also includes an exception to inspecting the chem-mill steps under an existing external repair doubler, provided the conditions specified below apply:

- The repair was installed after November 24, 2010
- The repair was approved by the FAA or by a Boeing Commercial Airplanes Organization Designation Authorization (ODA) who was authorized by the FAA to make such findings
- The repair extends a minimum of three rows of fasteners on each side of the chem-mill step line in the circumferential direction, Or
- The repair was approved by the FAA or by a Boeing Commercial Airplanes Organization Designation Authorization (ODA) who was authorized by the FAA to make such findings
- The repair extends a minimum of 2 rows of 3/16 inch diameter fasteners on each side of the chem-mill step in the circumferential direction with 5-6D fastener spacing

- The repair is similar to Figure 201, Repair 31 of Figure 201 of Subject 53-00-01, “Fuselage Skin – General,” of the Boeing 737-300, 737-400, or 737-500 Structural Repair Manual, with regard to fastener type, size layout and pitch; repair part thickness and material; and repair installation.

#### **FAA’s Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

#### **Proposed AD Requirements**

This proposed AD would retain all of the requirements of AD 2005-13-27, Amendment 39-14164 (70 FR 36821, June 27, 2005). This proposed AD would add repetitive inspections for cracking using different inspection methods and would inspect additional areas, and corrective actions if necessary. This proposed AD would also require, for airplanes on which the existing permanent repair was done, installing internal tear strap doublers. This proposed AD would also require, for airplanes on which the existing temporary repair was done, doing repetitive inspections for loose fasteners and replacement if necessary, and installing a permanent repair. This proposed AD would also change (reducing some and extending others) initial compliance times and repetitive intervals. This proposed AD would also require accomplishing the actions specified in the service information described previously, except as discussed under “Differences Between the Proposed AD and the Service Information.”

#### **Differences Between the Proposed AD and the Service Information**

The Accomplishment Instructions in Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, do not provide a procedure for replacing loose fasteners; however, this proposed AD requires replacing any loose fastener with a new fastener of the same type and size as specified in Figures 6, 35 and 36, as applicable, of

the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010.

Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, specifies to contact the manufacturer for instructions on how to repair certain conditions, but this proposed AD would require repairing those conditions in one of the following ways:

- In accordance with a method that we approve; or
- Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

### **Costs of Compliance**

We estimate that this proposed AD affects 109 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

<b>Estimated costs</b>			
<b>Action</b>	<b>Labor cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspection (retained actions from AD 2005-13-27, Amendment 39-14164 (70 FR 36821, June 27, 2005))	94 work-hours X \$85 per hour = \$7,990	\$7,990 per inspection cycle	\$870,910
New NDI Inspections (medium frequency eddy current, magneto optical imaging, C-scan, or ultrasonic phased array)	Up to 390 work-hours X \$85 per hour = \$33,150	Up to \$33,150 per inspection cycle	Up to \$3,613,350
Install internal tear strap doublers (for airplanes on which permanent repair was already done)	Up to 30 work-hours X \$85 per hour = \$2,550	Up to \$2,550	Up to \$277,950
*Inspection for loose fasteners (for airplanes on which temporary repair was already done)	1 work-hour X \$85 per hour = \$85	\$85	\$9,265



<b>Action</b>	<b>Labor cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
*Install permanent repair (for airplanes on which temporary repair was already done)	Up to 48 work-hours X \$85 per hour = \$4,080	Up to \$4,080	Up to \$444,720
*Inspection adjacent to lap joint repair	3 work-hours X \$85 per hour = \$255	\$255	\$27,795

\*The cost for this action is for one typical repair only.

We estimate the following costs to do any necessary repairs that would be required based on the results of the proposed inspection. We have no way of determining the number of aircraft that might need these repairs:

#### **On-condition costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Repair <sup>1</sup>	209 work-hours X \$85 per hour = \$17,765	None	\$17,765

<sup>1</sup>Repair cost estimate is for one typical repair only.

#### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing airworthiness directive (AD) 2005-13-27, Amendment 39-14164 (70 FR 36821, June 27, 2005), and adding the following new AD:

**The Boeing Company:** Docket No. FAA-2011-1419; Directorate Identifier 2010-NM-281-AD.

#### **(a) Comments Due Date**

**The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].**

#### **(b) Affected ADs**

This AD supersedes AD 2005-13-27, Amendment 39-14164 (70 FR 36821, June 27, 2005).

#### **(c) Applicability**

**This AD applies to The Boeing Company Model 737-300, -400, and -500 series airplanes, certificated in any category; as identified in Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010.**

#### **(d) Subject**

**Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 53, Fuselage.**

#### **(e) Unsafe Condition**

**This AD was prompted by reports of cracking at the horizontal chem-mill steps away from the lap joints over the entire crown area, and vertical chem-mill cracks adjacent to the butt joints. We are issuing this AD to detect and correct fatigue cracking of the fuselage skin, which could cause the fuselage skin to fracture and fail, and result in rapid decompression of the airplane.**

#### **(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) RESTATEMENT OF REQUIREMENTS OF AD 2005-13-27, AMENDMENT 39-14164 (70 FR 36821, JUNE 27, 2005): Initial Inspections per Boeing Special**

**Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005**

**At the later of the times specified in paragraphs (g)(1) and (g)(2) of this AD, perform detailed and eddy current inspections for cracking of the crown area of the fuselage skin in accordance with Part 1, including the “Note,” of the Work Instructions of Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005, except as provided by paragraph (j) of this AD. Doing the inspections required by paragraph (m) of this AD terminates the inspections required by this paragraph for the corresponding inspection areas.**

(1) Before the accumulation of the applicable total flight cycles specified in the “Threshold” column of Table 1 of Figure 1 of Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005.

(2) Within 4,500 flight cycles after August 1, 2005 (the effective date of AD 2005-13-27, Amendment 39-14164 (70 FR 36821, June 27, 2005)).

**(h) Repetitive Inspections per Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005**

**Repeat either the detailed or eddy current inspections specified in paragraph (g) of this AD at the applicable intervals specified in paragraph (h)(1) or (h)(2) of this AD until paragraph (i)(1) or (i)(2) of this AD has been done, as applicable. Doing the inspection required by paragraph (m) of this AD terminates the inspections required by this paragraph for the corresponding inspection area.**

(1) Repeat the detailed inspections thereafter at intervals not to exceed 1,200 flight cycles.

(2) Repeat the eddy current inspections thereafter at intervals not to exceed 3,000 flight cycles.

**(i) Permanent or Time-Limited Repair for Cracking Found During Inspections in Accordance with Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005**

**If any cracking is found during any inspection required by paragraph (g) or (h) of**

**this AD, do the actions specified in paragraph (i)(1) or (i)(2) of this AD in accordance with Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005, except as provided by paragraphs (j) and (k) of this AD.**

(1) Before further flight, do a permanent repair (including related investigative actions and applicable corrective actions) in accordance with Part 2 of the Work Instructions of Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005. Doing a permanent repair ends the repetitive inspections required by paragraph (h) of this AD for the repaired area only.

(2) Do the actions specified in paragraphs (i)(2)(i) and (i)(2)(ii) of this AD at the time specified in the applicable paragraph. Doing a time-limited repair ends the repetitive inspections required by paragraph (h) of this AD for the repaired area only.

(i) Before further flight, do a time-limited repair (including related investigative actions and applicable corrective actions) in accordance with Part 3 of the Work Instructions of Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005.

(ii) At the times specified in Figure 8 of Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005, do the related investigative and corrective actions in accordance with Part 3 of the Work Instructions of Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005.

**(j) Contact the FAA**

Where Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005, specifies to contact Boeing for appropriate action: Before further flight, repair according to a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or according to data meeting the certification basis of the airplane approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to

make those findings; or using a method approved in accordance with the procedures specified in paragraph (x) of this AD. For a repair method to be approved, the approval must specifically reference this AD.

**(k) No Reporting for Actions in Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005**

Although Boeing Special Attention Service Bulletin 737-53-1234, Revision 1, dated March 31, 2005, specifies reporting certain information to Boeing, this AD does not require that action.

**(l) Actions Accomplished According to Previous Issue of Service Bulletin**

Actions done before August 1, 2005, in accordance with Boeing Special Attention Service Bulletin 737-53-1234, dated June 13, 2002, are acceptable for compliance with the corresponding actions required by paragraphs (g), (h), and (i) of this AD.

**(m) NEW REQUIREMENTS OF THIS AD: Fuselage Skin Inspections at Chem-mill Steps Common to Lap Joints**

Except as provided by paragraph (v)(1) of this AD; at the applicable time specified in Tables 1 and 2 of paragraph 1.E, "Compliance," of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010: Do a non-destructive inspection (NDI) (medium frequency eddy current, magneto optical imaging, C-scan, or ultrasonic phased array) for horizontal chem-mill cracking above the S-4 and S-10 lap joints, in accordance with paragraph 3.B.1.a. of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, except as provided by paragraph (r) of this AD. Repeat the applicable inspections thereafter at intervals not to exceed those specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010. Accomplishment of the inspections required by this paragraph terminates the requirements of paragraphs (g) and (h) of this AD for the corresponding inspection areas.

Note 1: Option 1 of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, specifies doing one of the following NDI; medium frequency eddy current inspection, magneto optical imaging inspection, or C-scan inspection. Option 2 specifies doing one NDI - an external ultrasonic phased array inspection. These options have different compliance times after the initial inspection.

**(n) Permanent or Time-Limited Repair for Cracking Found During Paragraph (m) Inspections**

If any cracking is found during any inspection required by paragraph (m) of this AD, do the actions specified in paragraph (n)(1) or (n)(2) of this AD.

(1) Before further flight, do a permanent repair (including related investigative actions and applicable corrective actions) in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, except as provided by paragraph (v)(2) of this AD. Doing a permanent repair ends the repetitive inspections required by paragraph (m) of this AD for the repaired area only.

(2) Do the actions specified in paragraphs (n)(2)(i), (n)(2)(ii), and (n)(2)(iii) of this AD at the time specified in the applicable paragraph. Doing a time-limited repair ends the repetitive inspections required by paragraph (m) of this AD for the repaired area only.

(i) Before further flight, do a time-limited repair (including related investigative actions and applicable corrective actions) in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, except as provided by paragraph (v)(2) of this AD.

(ii) Within 3,000 flight cycles after the time-limited repair was installed as specified in paragraph (n)(2)(i) of this AD or within 500 flight cycles after the effective date of this AD, whichever occurs later, do a detailed inspection for loose fasteners, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service

Bulletin 737-53A1234, Revision 2, dated November 24, 2010. Repeat the inspection thereafter at intervals not to exceed 3,000 flight cycles until the permanent repair required by paragraph (n)(2)(iii) of this AD is done. If any loose fasteners are found, before further flight, replace the fasteners with new fasteners of the same type and size as specified in Figures 6, 35 and 36 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010.

(iii) Within 6,000 flight cycles after the time-limited repair was installed as specified in paragraph (n)(2)(i) of this AD, do the permanent repair specified in paragraph (n)(1) of this AD

**(o ) Fuselage Skin Inspections at Chem-mill Steps Common to Shear Wrinkle Areas**

Except as provided by paragraph (v)(1) of this AD; at the applicable time specified in Table 3 of paragraph 1.E, “Compliance,” of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010: Do an NDI (medium frequency eddy current, magneto optical imaging, C-scan, or ultrasonic phased array) for horizontal chem-mill cracking in the shear wrinkle areas, in accordance with paragraph 3.B.1.b of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010. Repeat the applicable inspections thereafter at intervals not to exceed those specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010.

**(p) Fuselage Skin Inspections at Specified Vertical Chem-mill Step Locations**

Except as provided by paragraph (v)(1) of this AD; at the applicable time specified in Table 4 of paragraph 1.E, “Compliance,” of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010: Do an NDI (medium frequency eddy current, magneto optical imaging, C-scan, or ultrasonic phased array) for vertical chem-mill cracking at locations specified in, and in accordance with paragraph 3.B.1.c. of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234,



Revision 2, dated November 24, 2010. Repeat the applicable inspections thereafter at intervals not to exceed those specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010.

**(q) Fuselage Skin Inspections at Chem-mill Steps in General Pocket-to-Pocket Areas**

Except as provided by paragraph (v)(1) of this AD; at the applicable time specified in Tables 5 and 6 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010: Do an NDI (medium frequency eddy current, magneto optical imaging, C-scan, or ultrasonic phased array) for horizontal chem-mill cracking in general pocket-to-pocket areas at specified locations in and in accordance with paragraph 3.B.1.d., 3.B.1.e., and 3.B.1.f., as applicable, of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010. Repeat the applicable inspections thereafter at intervals not to exceed those specified in Tables 5 and 6 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010.

**(r) Inspection Exception**

For inspections required by paragraph (m) of this AD: It is not necessary to inspect the chem-mill steps under an existing repair installed using Boeing Special Attention Service Bulletin 737-53-1234, dated June 13, 2002; or Revision 1, dated March 31, 2005.

**(s) Repair of Cracking Found During Inspections Required by Paragraphs (o) Through (q) of this AD**

If any crack is found during any inspections required by paragraph (o), (p), or (q) of this AD, before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (x) of this AD.

**(t) Actions for Airplanes on Which Repairs Have Been Done Using Previous Service Information**

(1) For airplanes on which permanent repairs have been done in accordance with Boeing Special Attention Service Bulletin 737-53-1234, dated June 13, 2002, or Revision 1, dated March 31, 2005; except airplanes on which internal tear strap doublers were previously installed using a repair plan approved using the procedures specified in paragraph (x) of this AD: Within 6,000 flight cycles after the effective date of this AD, install internal tear strap doublers, in accordance with paragraph 3.B.3. of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, except as provided by paragraph (v)(2) of this AD. Installation of internal tear strap doublers specified in this paragraph terminates the inspections required by paragraph (m) of this AD for the repaired area only.

(2) For airplanes on which time-limited repairs have been installed in accordance with Boeing Special Attention Service Bulletin 737-53-1234, dated June 13, 2002, or Revision 1, dated March 31, 2005; except airplanes on which the permanent repair has been installed before the effective date of this AD in accordance with Boeing Special Attention Service Bulletin 737-53-1234, dated June 13, 2002, or Revision 1, dated March 31, 2005: Within 3,000 flight cycles after the time limited repair is installed, or within 500 flight cycles after the effective date of the AD, whichever occurs later, do a detailed inspection for loose fasteners, in accordance with paragraph 3.B.4. of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010. Repeat the inspection thereafter at intervals not to exceed 3,000 flight cycles until the permanent repair is installed in accordance with paragraph (n)(1) of this AD. If any loose fasteners are found, before further flight, replace the fasteners with new fasteners of the same type and size as specified in Figures 6, 35, and 36, as applicable, of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010.

(3) For airplanes on which time-limited repairs have been installed in accordance with Boeing Special Attention Service Bulletin 737-53-1234, dated June 13, 2002, or Revision 1, dated March 31, 2005; except airplanes on which the permanent repair has been installed before the effective date of this AD in accordance with Boeing Special Attention Service Bulletin 737-53-1234, dated June 13, 2002, or Revision 1, dated March 31, 2005; before the effective date of this AD: Within 6,000 flight cycles after the time-limited repair is installed, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later, make the repair permanent by replacing the blind fasteners in the time-limited repair with solid rivets, and install internal tear strap doublers, in accordance with paragraph 3.B.4. of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, except as provided by paragraph (v)(2) of this AD.

**(u) Action Not in Accomplishment Instructions**

If any crack is found after the time-limited or permanent repair is installed, and Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, specifies to contact Boeing for appropriate action: Before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (x) of this AD.

**(v) Exceptions to Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010**

(1) Where paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, specifies a compliance time relative to the “release of Revision 2 of this service bulletin,” this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Where Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, specifies to contact Boeing for appropriate action: Before further

flight, repair the cracking using a method approved in accordance with the procedures specified in paragraph (x) of this AD.

(3) Although Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, specifies reporting certain information to Boeing, this AD does not require that action.

**(w) Post-repair Inspections**

The post-repair inspection specified in Table 7 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, is not required by this AD.

Note 2: The damage tolerance inspections specified in Table 7 of paragraph 1.E., Compliance, of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, may be used in support of compliance with section 121.1109(c)(2) or 129.109(c)(2) of the Federal Aviation Regulations (14 CFR 121.1109(c)(2) or 14 CFR 129.109(c)(2)). The corresponding actions specified in the Accomplishment Instructions and Figures 40 and 41 of Boeing Alert Service Bulletin 737-53A1234, Revision 2, dated November 24, 2010, are not required in this AD.

**(x) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle ACO, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be e-mailed to:

[9-ANM-Seattle-ACO-AMOC-Requests@faa.gov](mailto:9-ANM-Seattle-ACO-AMOC-Requests@faa.gov).

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved for AD 2005-13-27, Amendment 39-14164 (70 FR 36821, June 27, 2005), are approved as AMOCs for the corresponding requirements in this AD.

**(y) Related Information**

(1) For more information about this AD, contact Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 917-6447; fax (425) 917-6590; e-mail: [wayne.lockett@faa.gov](mailto:wayne.lockett@faa.gov).

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail [me.boecom@boeing.com](mailto:me.boecom@boeing.com); Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on January 6, 2012.

Ali Bahrami,  
Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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